



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,576	11/17/2006	Thomas Buchberger	R.304929	1291
2119	7590	10/16/2009	EXAMINER	
RONALD E. GREIGG			CHAUDRY, ATIF H	
GREIGG & GREIGG P.L.L.C.				
1423 POWHATAN STREET, UNIT ONE			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22314			3753	
			MAIL DATE	DELIVERY MODE
			10/16/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/549,576	<b>Applicant(s)</b> BUCHBERGER ET AL.
	<b>Examiner</b> ATIF H. CHAUDRY	<b>Art Unit</b> 3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 11 August 2009.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 22,23,25-27 and 29-43 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 22,23,25-27 and 29-43 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 9/19/05 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

**DETAILED ACTION**

**Status of the claims**

Applicant's amendment as filed on 08/11/09 has been entered. The amendment amended claims 22, 31, 36, 39. Currently claims 22, 23, 25-27, 29-43 are pending in this application.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cadman et al (US Pat 2498482) in view of Ichikawa et al. (US Patent 5002090).

Cadman et al (Fig. 2) discloses a valve comprising a single piece valve holder 33, a single piece valve insert 30 screwed to the valve holder 33, a valve piston

48 supported slidably in the valve insert 30, a compression spring 50, acting upon the valve piston 48 with a pressure force acting in the closing direction, and an adjusting shim 47 disposed between the valve piston 48 and the compression spring 50 such that the compression spring 50 is braced on one end on a bottom piece of the valve holder 33 and on the other on a face of the adjusting shim 47 facing away from the valve piston 48 wherein the valve holder 33 is cup-shaped and has at least two subregions, the first subregion 35 with smaller diameter receiving the valve spring 50, and the subregions merge with one another in steplike fashion, and wherein the steplike transition of the valve holder 33 formed by the different diameter regions is seated on the valve insert 30 such that the valve insert 30 is received in second subregion.

Cadman et al. fails to disclose the piston as a single piece instead it discloses an additional shim 46 and a gasket 49. Ichikawa et al. (Fig. 1) teaches a piston valve having flow paths between a valve piston 4 and a corresponding housing surface comprising flat surfaces 4b on the outer circumference of the valve piston 4 wherein the piston has only one adjusting shim 4 and no sealing gasket. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Cadman et al with a single piece valve piston as taught by Ichikawa et al. as an alternative piston operating mechanism.

Cadman et al. as modified fails to disclose the valve consisting only of a valve holder, insert, piston, spring and adjusting shim. However it would have been

obvious to a person having ordinary skill in the art at the time of the invention to have assembled the valve without the additional parts based upon application requirements since they are not essential to the operation of valve.

4. Claims 22, 23 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jay et al (US Patent 2672881) in view of Cadman et al (US Pat 2498482) further in view of Ichikawa et al. (US Patent 5002090).

Regarding claims 22 and 31, Jay et al (fig. 2, 3) discloses a pressure limiting valve comprising a valve holder 14, 15, a valve insert 10 connected to valve holder, a piston 26, a compression spring 28 acting upon the piston 26 through an adjusting shim 25.

Jay et al fails to disclose a valve holder comprising cup shaped holder having two subregions. Cadman et al (Fig. 2) teaches a valve comprising a valve holder 33, a valve insert 30 screwed to the valve holder 33, a valve piston 48 supported slidably in the valve insert 30, a compression spring 50, acting upon the valve piston 48 with a pressure force acting in the closing direction, and an adjusting shim 47 disposed between the valve piston 48 and the compression spring 50 such that the compression spring 50 is braced on one end on a bottom piece of the valve holder 33 and on the other on a face of the adjusting shim 47 facing away from the valve piston 48 wherein the valve holder 33 is cup-shaped and has at least two subregions, the first subregion 35 with smaller diameter receiving the valve spring 50, and the subregions merge with one another in steplike fashion, and wherein the steplike transition of the valve holder 33 formed

by the different diameter regions is seated on the valve insert 30 such that the valve insert 30 is received in second subregion. Cadman et al teaches an outflow opening 34 in the holder 33. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with a valve holder and a valve insert as taught by Cadman et al as an alternative valve housing assembly.

Jay et al (fig. 5) discloses flat places extending parallel to the axis of the piston 35. Jay et al. fails to disclose the flat places at the outer circumference of the valve piston. Ichikawa et al. (Fig. 1) teaches piston valve having flow paths between a valve piston 4 and a corresponding housing surface comprising flat surfaces 4b on the outer circumference of the valve piston 4. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with flat surfaces on the outer circumference of the valve piston as taught by Ichikawa et al. as an alternative fluid flow path between piston and valve housing.

Jay et al discloses two flat places uniformly distributed over the circumference of the piston (parallel in Fig. 5, oriented at angle in Fig. 3) but fail to disclose three flat places. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided three flat surfaces on the piston disclosed by Jay et al, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Jay recites additional elements of valve and fails to disclose the valve consisting only of a valve holder, insert, piston, spring and adjusting shim. However it would have been obvious to a person having ordinary skill in the art at the time of the invention to have assembled the valve without the additional parts since upon modification using the valve insert and holder of Cadman et al. the additional parts are not needed in the assembly of the valve.

5. Regarding claim 23, Jay et al discloses the insert 10 having a cup shaped recess to hold the adjusting shim 25.
6. Claims 25, 27, 29, 30, 32-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jay et al (US Patent 2672881) in view of Cadman et al (US Pat 2498482) further in view of Weirich (US Patent 4313463) and Ichikawa et al. (US Patent 5002090).

Regarding claims 25, 27, 29, 35-37, Jay et al (fig. 2, 3) discloses a pressure limiting valve comprising a valve holder 14, 15, a valve insert 10 connected to valve holder, a single piece piston 26, a compression spring 28 acting upon the piston 26 through a single piece adjusting shim 25.

Jay et al fails to disclose a valve holder comprising cup shaped holder having two subregions. Cadman et al (Fig. 2) teaches a valve comprising a single piece valve holder 33, a single piece valve insert 30 screwed to the valve holder 33, a valve piston 48 supported slidably in the valve insert 30, a compression spring 50, acting upon the valve piston 48 with a pressure force acting in the closing direction, and an adjusting shim 47 disposed between the valve piston 48 and

the compression spring 50 such that the compression spring 50 is braced on one end on a bottom piece of the valve holder 33 and on the other on a face of the adjusting shim 47 facing away from the valve piston 48 wherein the valve holder 33 is cup-shaped and has at least two subregions, the first subregion 35 with smaller diameter receiving the valve spring 50, and the subregions merge with one another in steplike fashion, and wherein the steplike transition of the valve holder 33 formed by the different diameter regions is seated on the valve insert 30 such that the valve insert 30 is received in second subregion. Cadman et al teaches an outflow opening 34 in the holder 33. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with a valve holder and a valve insert as taught by Cadman et al as an alternative valve housing assembly.

Jay et al fails to disclose an outflow conduit at an angle to the longitudinal axis. Weirich (fig. 1) teaches a pressure relief valve 10 comprising a cup shaped valve holder 11 with an outer jacket face having an outflow conduit 11' at an angle relative to the longitudinal axis of the valve holder 11 connecting the outer jacket face to inside of valve. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with a valve holder having outflow conduit as taught by Weirich as an alternative fluid outlet path.

Jay et al. fails to disclose the flat places at the outer circumference of the valve piston. Ichikawa et al. (Fig. 1) teaches piston valve having flow paths between a

valve piston 4 and a corresponding housing surface comprising flat surfaces 4b on the outer circumference of the valve piston 4. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with flat surfaces on the outer circumference of the valve piston as taught by Ichikawa et al. as an alternative fluid flow path between piston and valve housing.

Jay et al discloses two flat places uniformly distributed over the circumference of the piston (parallel in Fig. 5, oriented at angle in Fig. 3) but fail to disclose three flat places. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided three flat surfaces on the piston disclosed by Jay et al, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Jay recites additional elements of valve and fails to disclose the valve consisting only of a valve holder, insert, piston, spring and adjusting shim. However it would have been obvious to a person having ordinary skill in the art at the time of the invention to have assembled the valve without the additional parts since upon modification using the valve insert and holder of Cadman et al. the additional parts are not needed in the assembly of the valve.

7. Regarding claim 29, Jay et al discloses (Fig. 6) the piston 26 comprising an end surface 36 and an outer circumferential surface having flat places 35.

8. Regarding claim 33 and 34, Jay et al discloses the adjusting shim 25 having a fluid recess 29 disposed eccentrically.
9. Regarding claim 38, Jay et al discloses an outlet 22 provided in the valve insert.
10. Regarding claims 30 and 32, Jay et al discloses two flat places uniformly distributed over the circumference of the piston (parallel in Fig. 5, oriented at angle in Fig. 3) but fail to disclose three flat places. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided three flat surfaces on the piston disclosed by Jay et al, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).
11. Claims 39, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jay et al (US Patent 2672881) in view of Cadman et al (US Pat 2498482), Weirich (US Patent 4313463) and Ichikawa et al. (US Patent 5002090) further in view of Yie (US Patent 5241986).
12. Jay et al fails to disclose a piston rod. Yie teaches a pressure relief valve 10 comprising a piston 15 having a piston rod 17 protruding into the cup shaped recess of valve holder 11 and surrounded by a spring 22 such that the adjusting shim 18 is slipped onto the piston rod 17 and rests on a steplike seat. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with a piston rod as taught by Yie in order to help align the piston and the spring.

13. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jay et al (US Patent 2672881) in view of Cadman et al (US Pat 2498482), Weirich (US Patent 4313463) and Ichikawa et al. (US Patent 5002090) further in view of LINDEBOOM (US Patent 3346009).
14. Jay et al fails to disclose a conical spring. LINDEBOOM (fig. 1) teaches a pressure actuated valve comprising a piston operated by a conical spring. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with a conical spring as taught by LINDEBOOM as an alternative biasing mechanism.
15. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jay et al (US Patent 2672881) in view of Cadman et al (US Pat 2498482), Weirich (US Patent 4313463) and Ichikawa et al. (US Patent 5002090) further in view of Lauer et al (US Patent 6523913).
16. Jay et al fails to disclose valve parts joined together by caulking. Lauer et al (fig. 1, col 2, line 48), teaches a pressure control valve comprising a valve holder 14 and a valve insert joined together by caulking. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with caulking as a joining method as taught by Lauer et al as an alternative method of valve assembly.
17. Claims 36 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jay et al (US Patent 2672881) in view of Cadman et al (US Pat 2498482) further in view of Platt et al (US Patent 4413646) and Ichikawa et al. (US Patent 5002090).

Jay et al (fig. 2, 3) discloses a pressure limiting valve comprising a valve holder 14, 15, a valve insert 10 connected to valve holder, a piston 26, a compression spring 28 acting upon the piston 26 through an adjusting shim 25.

Jay et al fails to disclose a valve holder comprising cup shaped holder having two subregions. Cadman et al (Fig. 2) teaches a valve comprising a valve holder 33, a valve insert 30 screwed to the valve holder 33, a valve piston 48 supported slidably in the valve insert 30, a compression spring 50, acting upon the valve piston 48 with a pressure force acting in the closing direction, and an adjusting shim 47 disposed between the valve piston 48 and the compression spring 50 such that the compression spring 50 is braced on one end on a bottom piece of the valve holder 33 and on the other on a face of the adjusting shim 47 facing away from the valve piston 48 wherein the valve holder 33 is cup-shaped and has at least two subregions, the first subregion 35 with smaller diameter receiving the valve spring 50, and the subregions merge with one another in steplike fashion, and wherein the steplike transition of the valve holder 33 formed by the different diameter regions is seated on the valve insert 30 such that the valve insert 30 is received in second subregion. Cadman et al teaches an outflow opening 34 in the holder 33. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with a valve holder and a valve insert (specifically their method of assembly and spring seating arrangement) as taught by Cadman et al as an alternative valve housing assembly.

Jay et al fails to disclose an outflow conduit at an oblique angle to the longitudinal axis. Platt et al teaches a valve comprising a valve holder housing having an oblique outlet in the valve older housing to reduce erosion of the valve surface. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with an oblique outlet as taught by Platt et al in order to reduce erosion of the valve surface.

Jay et al. fails to disclose the flat places at the outer circumference of the valve piston. Ichikawa et al. (Fig. 1) teaches piston valve having flow paths between a valve piston 4 and a corresponding housing surface comprising flat surfaces 4b on the outer circumference of the valve piston 4. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided the valve disclosed by Jay et al with flat surfaces on the outer circumference of the valve piston as taught by Ichikawa et al as an alternative fluid flow path between piston and valve housing.

Jay et al discloses two flat places uniformly distributed over the circumference of the piston (parallel in Fig. 5, oriented at angle in Fig. 3) but fail to disclose three flat places. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided three flat surfaces on the piston disclosed by Jay et al, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Jay recites additional elements of valve and fails to disclose the valve consisting only of a valve holder, insert, piston, spring and adjusting shim. However it would have been obvious to a person having ordinary skill in the art at the time of the invention to have assembled the valve without the additional parts since upon modification using the valve insert and holder of Cadman et al. the additional parts are not needed in the assembly of the valve.

***Response to Arguments***

18. Applicant's arguments with respect to claim 22 as rejected under Cadman et al. have been considered but are moot in view of the new ground(s) of rejection.
19. Applicant's arguments with respect to rejection under Jay et al. have been fully considered but they are not persuasive.
20. Applicant's argument that Jay et al. discloses the valve holder as two piece is not persuasive since it is replaced by single piece valve holder 33 of Cadman et al.
21. In response to applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).
22. Applicant's argument that Jay et al. cannot be combined with Cadman et al. is not persuasive since only the valve insert and holder (specifically their method of assembly and spring seating arrangement) are being incorporated into Jay et al.
23. Applicant's argument that holder 33 of Cadman et al. is not cup shaped is not persuasive (see Fig. 1, 2).

24. Applicant's argument that regarding rejection of claims 39, 41, 42 that "There is no explanation of why the references to Cadman et al., Weirich and Ichikawa et al. are included in this rejection" is not persuasive since the claims depend on independent claim 36 which was rejected under the references in question. Applicant's arguments regarding rejection of claims 40 and 26 are not persuasive for the same reasoning.

***Conclusion***

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ATIF H. CHAUDRY whose telephone number is (571)270-3768. The examiner can normally be reached on Mon-Fri Alternate Friday off 9-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571)272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Atif H Chaudry/  
Examiner, Art Unit 3753

/Robin O. Evans/  
Supervisory Patent Examiner, Art Unit 3753